

GAO

Report to Congressional Committees

November 2001

MILITARY TRANSFORMATION

Army Has a
Comprehensive Plan
for Managing Its
Transformation but
Faces Major
Challenges

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

20011128 146



GAO

Accountability Integrity Reliability

Contents

Letter		1
	Results in Brief	2
	Scope and Methodology	3
Briefing Section I	Background	6
Briefing Section II	Management of the Transformation	14
Briefing Section III	Key Challenges	26
Briefing Section IV	Conclusions	42
Appendix I	Transformation Campaign Plan's Lines of Operation, Missions, and Objectives	44
Appendix II	Combat, Aircraft, and Support Systems and Equipment Planned for Recapitalization or Upgrade During Army Transformation	46
Appendix III	Comments From the Department of Defense	47
Table		
	Table 1: Roles and Responsibilities in Army's Transformation Campaign Plan	15



G A O

Accountability * Integrity * Reliability

United States General Accounting Office
Washington, DC 20548

November 16, 2001

The Honorable Carl Levin
Chairman
The Honorable John W. Warner
Ranking Minority Member
Committee on Armed Services
United States Senate

The Honorable Bob Stump
Chairman
The Honorable Ike Skelton
Ranking Minority Member
Committee on Armed Services
House of Representatives

The Army has begun to transform itself from a Cold War-oriented force into a more rapidly deployable and responsive force better able to meet the diverse defense challenges of the future. The far-reaching organizational and operational changes that the Army plans will affect virtually every element of the Army and take decades to implement. In addition, funding the transformation, including developing and acquiring future combat systems and modernizing aging equipment, will be difficult. To implement the transformation, the Army has developed a Transformation Campaign Plan. The Campaign Plan is a mechanism for integrating transformation efforts within the Army and for achieving the goal of transforming the Army over 30 years.

Pursuant to our basic legislative responsibilities, we are monitoring the Army's transformation efforts. This report is the second of a planned series of reports related to these efforts.¹ It (1) assesses the Army's processes for managing transformation efforts and (2) identifies key challenges that the Army faces in managing its transformation. We briefed your offices on the results of our work in July and September 2001. This report summarizes and updates the major messages of those briefings and is being provided because of your oversight responsibilities.

¹ We previously reported on acquisition challenges of the Army's transformation efforts. See *Defense Acquisition: Army Transformation Faces Weapon Systems Challenges* (GAO-01-311, May 21, 2001).

Results in Brief

The Army has a comprehensive process for managing its transformation efforts over the next 30 years. Its Transformation Campaign Plan serves as a common frame of reference for officials throughout the Army. It defines transformation goals, sets milestones for achieving them, and assigns lines of responsibilities for each aspect of the plan. The Army has established several forums at various levels of the organization to discuss evolving issues and address matters of concern. Because the plan affects every part of the Army, it is accompanied by an electronic tool that permits responsible parties in the Army to synchronize their efforts, track progress, and adjust plans as problems arise. To ensure that transformation becomes a part of the Army's normal operations rather than a separate initiative, the Army's plans have been integrated into existing planning, budgeting, and decision-making processes. The key strategies and concepts of the Army's plans were developed with the participation and ongoing input of the Commanders in Chief of the Unified Combatant Commands and the Army Service Component Commands. However, the lack of an overall Department of Defense (DOD) transformation strategy has led the Army to proceed with its transformation plans solely on the basis of broad departmental guidance rather than a clear understanding of how its efforts fit into an overall scheme for military transformation. Although the results of the Quadrennial Defense Review as well as other events are likely to affect the Army's plans, the Transformation Campaign Plan appears to be flexible enough to permit the Army to adapt its plans to evolving events.

However, the existence of a comprehensive management plan does not diminish the challenges the Army faces in implementing it. The Army's plans are highly dependent on near-term technological advances that are uncertain and long-term funding commitments. The following are among the key challenges that we identified:

Technology

- Keeping the program on track despite many uncertainties concerning the maturity and feasibility of new technologies that will be needed to implement new warfighting concepts.

Schedule

- Meeting ambitious milestones for forming the first transformational brigades despite delays in fielding the interim armored vehicles, designating subsequent brigades, and validating capabilities.

Acquisitions

- Achieving highly optimistic goals for equipping the future Objective Force, given the uncertainty of whether needed technologies can mature quickly enough.

Operations

- Maintaining readiness while simultaneously equipping, training, and sustaining Legacy, Interim, and Objective Forces—three distinctly different forces, each with a unique focus.²
- Streamlining logistics to support ambitious rapid deployment goals.

Human Capital

- Maintaining continuity and proficiency in the face of frequent rotations, training soldiers to the broad range of skills needed to respond to the full range of military operations, integrating reserve forces into the Army's transformation plans, and retaining personnel with advanced technical skills greatly demanded in the civilian economy.

Funding

- Obtaining sustained support of military and civilian leaders as well as the Congress over a period of 30 years in the face of competing national security priorities and domestic concerns.

Because the Army is in the early stages of implementing its transformation, we are not making any recommendations at this time.

In written comments on a draft of this report (see app. III), DOD generally agreed with the report and said the Department will continue to address these challenges as it attempts to maintain current timelines. DOD also provided technical comments that we incorporated where appropriate.

Scope and Methodology

To assess the Army's management of transformation efforts, we focused our review on the key strategic document that the Army developed to guide its transformation efforts—the Army Transformation Campaign Plan. To gain a clear understanding of transformation plans, we reviewed documents and interviewed officials involved in transformation planning in the Offices of the Deputy Chief of Army Staff for Operations and Plans, Washington, D.C. To gain a clear understanding of roles and responsibilities, we interviewed officials and received briefings from the various Army staff offices responsible for key aspects of the

² Legacy Force refers to those selected existing forces that the Army will modernize as it transforms. Interim Force refers to the first six to eight brigades that will be used as a bridge to the Army's future Objective Force, which is scheduled to begin fielding in 2008.

transformation as well as major Army commands, including U.S. Army Training and Doctrine Command, Fort Monroe, Virginia, and U.S. Army Forces Command, Fort McPherson, Georgia. As part of this work, we discussed how the transformation was being integrated into Army operations. To determine the organizational structure and operational capabilities of the Initial Brigade Combat Teams, we obtained documents and interviewed officials of the Army's I Corps, the first Interim Brigade Combat Team, and the Army Training and Doctrine Command's Brigade Coordination Cell, all of which are located at Fort Lewis, Washington.

To gain the perspective of commanders in the field on the extent of their participation in transformation plans and issues of concern to them, we discussed transformation plans with representatives of the U.S. Central Command, MacDill Air Force Base, Florida; U.S. Pacific Command and U.S. Army, Pacific, Honolulu, Hawaii; U.S. Forces Korea and 8th U.S. Army, Seoul, Korea; U.S. European Command, Stuttgart, Germany; and U.S. Army Europe, Heidelberg, Germany. We also discussed with them the extent of their participation in forums intended to coordinate transformation.

From these briefings and discussions, we identified key challenges that the transformation poses to the Army. We conducted our review from November 2000 through August 2001 in accordance with generally accepted government auditing standards.

We are sending copies of this report to the Secretary of Defense; the Secretary of the Army; the Secretary of the Navy; the Secretary of the Air Force; the Commandant of the Marine Corps; the Director, Office of Management and Budget; and other interested parties. We will make copies available to others on request and through the GAO home page at www.gao.gov.

If you or your staff have any questions, please call me on (202) 512-3958.
Major contributors to this report were Reginald L. Furr, Jr.;
Kenneth F. Daniell; Kevin C. Handley; M. Jane Hunt; and Leo B. Sullivan.

Carol R Schuster

Carol R. Schuster
Director, Defense Capabilities
and Management

Briefing Section I: Background



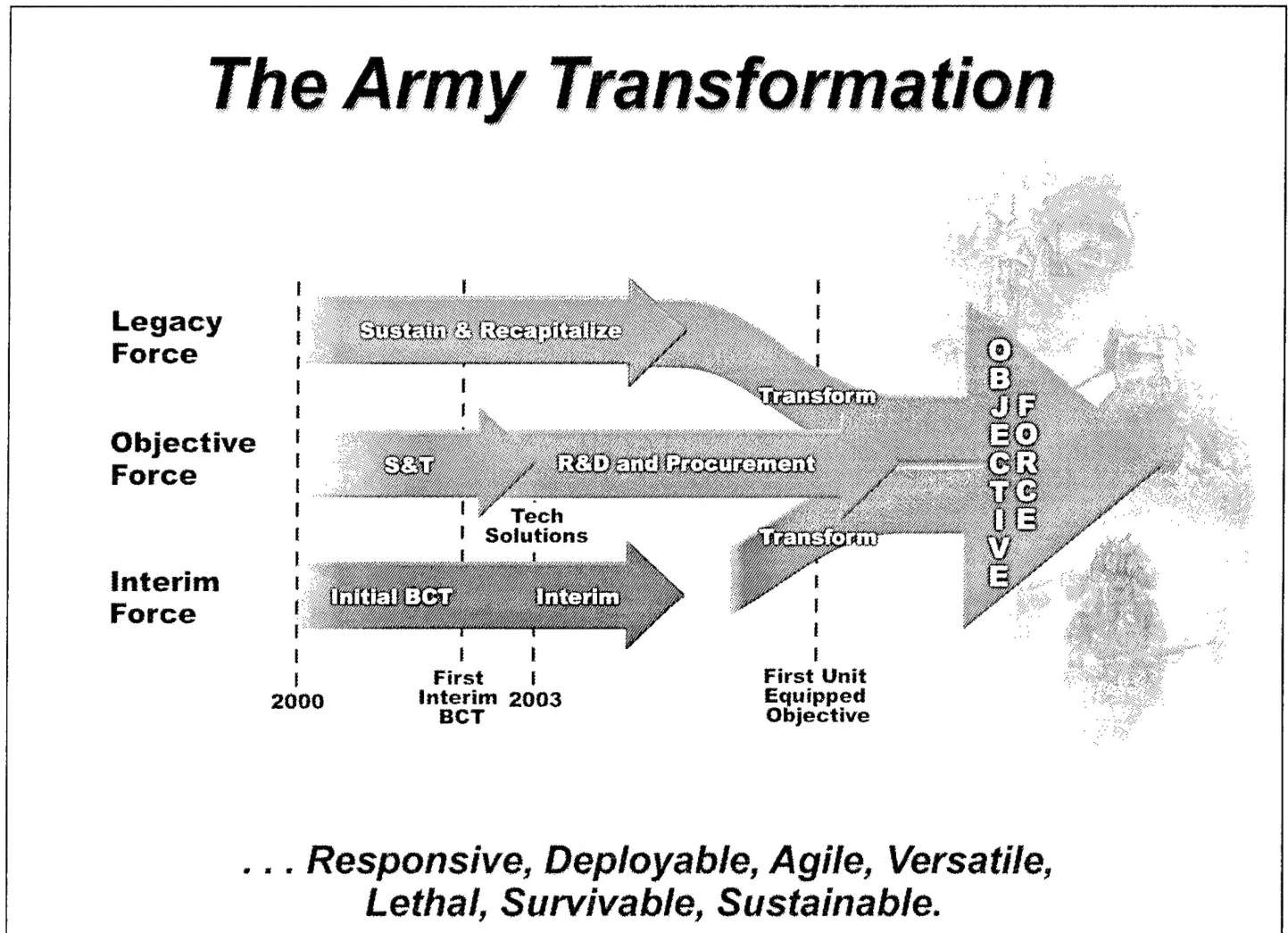
Army's Rationale for Transformation Plans

- The Army's goal is to be able to execute a broad range of operations and fill a strategic capabilities gap.
- The Army wants lighter, yet lethal and survivable, forces that can rapidly deploy and meet a broad range of threats.
- The Army's goal is to deploy a combat-capable brigade anywhere in the world in 96 hours, a division in 120 hours, and five divisions in 30 days.

The Chief of Staff of the Army announced in October 1999 that the Army was developing plans to transform its current Cold War organization and equipment to a lighter, more strategically responsive force to fill what it sees as a strategic gap in current warfighting capabilities. The Army believes that the transformation is necessary to respond more effectively to (1) the growing number of peacekeeping operations and small-scale contingencies and (2) the challenges posed by nontraditional threats such as weapons of mass destruction and terrorism. According to Army officials, light infantry forces can deploy rapidly but lack combat power, tactical mobility, and capability for sustained operations. Conversely, its heavy forces that rely more on tanks and other armored vehicles have unmatched combat power, tactical mobility, and capability for sustained operations but require too much time to deploy and require extensive materiel support.

Transformation plans call for being able to deploy a combat-capable brigade anywhere in the world within 96 hours, a division in 120 hours, and five divisions in 30 days. To do this, the Army plans to develop new equipment, transform its concepts and doctrine, build unit organizations that can adapt readily to changes in the intensity of a given military operation, and change how it trains its soldiers and leaders.

Figure 1: Army's Depiction of Its Transformation



Legend:

BCT = Brigade Combat Team

R&D = research and development

S&T = science and technology

Source: Department of the Army.

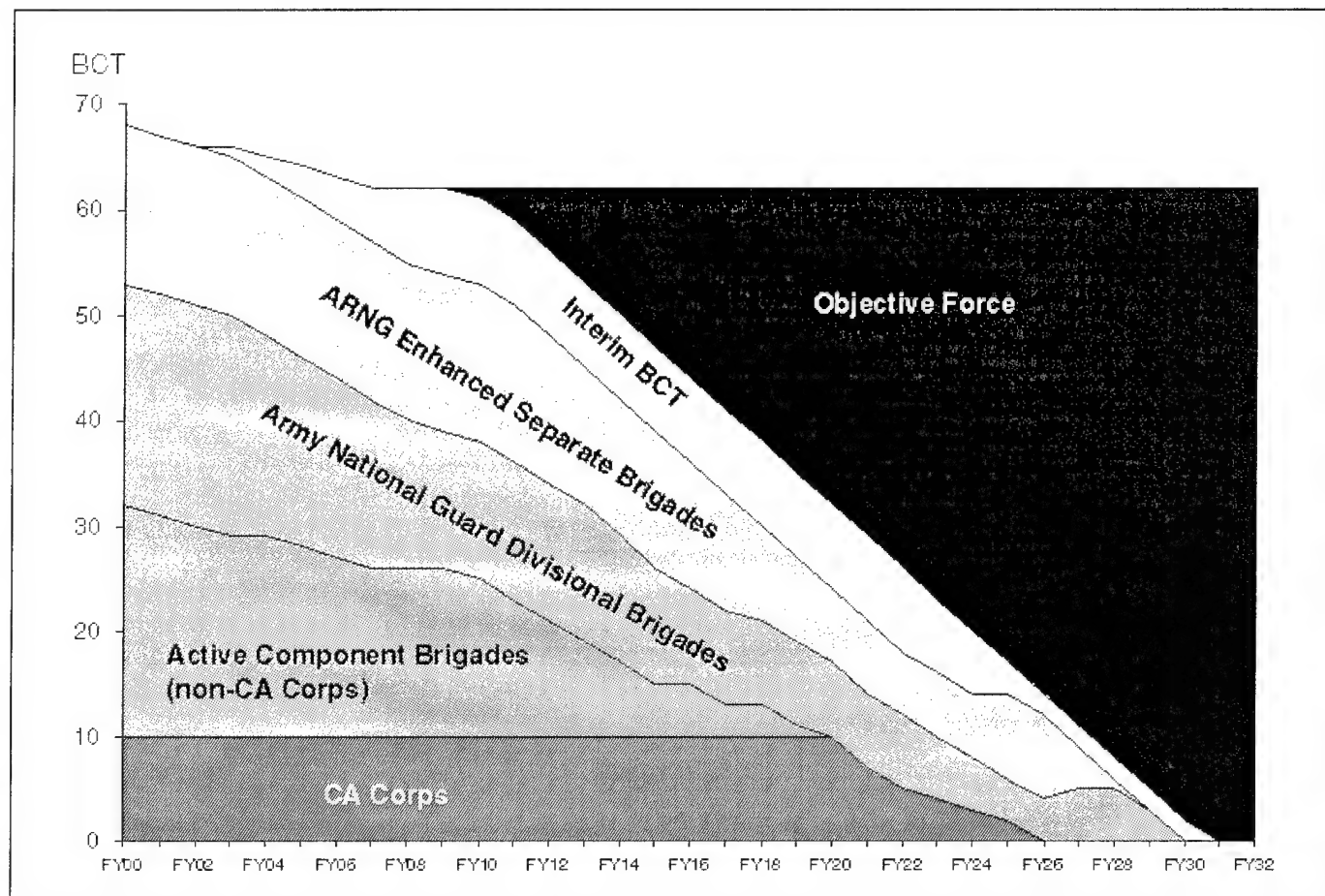
The Army plans to transform its forces over 30+ years. Its initial plans are to form two Interim Brigade Combat Teams at Fort Lewis, Washington. These forces, along with four to six additional brigades, will comprise the Army's Interim Force.¹ According to plans, the brigades will be organized, trained, and equipped with new light-armored wheeled vehicles ("interim armored vehicles") that are significantly lighter and more transportable than existing tanks and armored vehicles. The initial brigade is to achieve its initial operating capability in 2003, and all Interim Force brigades are to be formed and equipped by about 2008. The Army is optimizing these forces for use in small-scale contingencies but also intends to use them in the full range of military operations when augmented and employed with Army divisions. During this interim period, they are to validate new doctrine and organizational structures, develop insights for subsequent transformation, and provide a bridge to the Army's future force—the Objective Force.

Beginning in 2008 and continuing beyond 2030, the Army plans to transition to its Objective Force. During this period, all Army forces, including the Interim Force, are to be transformed into new organizational structures operating under new warfighting doctrine. Their new combat systems are to be lighter and more mobile, deployable, lethal, survivable, and sustainable than current systems. Currently, four competing research and development teams are working on alternative designs for these future combat systems. The Army is to select the most promising technologies from these competing teams by 2003.

As the Army transitions to its Objective Force, it plans to maintain the organizational designs of a portion of its existing combat force, which it terms its Legacy Force, and will modernize selected equipment in this force. This equipment includes such major weapons systems as the M1A1 Abrams tank, Bradley Fighting vehicle, and Black Hawk helicopter. This selective modernization is intended to enable the Army to maintain capability and readiness until the future combat systems are delivered to the Objective Force.

¹ On July 12, 2001, the Army announced the unit designations and locations of the next four Interim Brigade Combat Teams. The next four brigades are the 172nd Infantry Brigade (Separate), Forts Wainwright and Richardson, Alaska; the 2nd Armored Cavalry Regiment (Light), Fort Polk, Louisiana; the 2nd Brigade, 25th Infantry Division (Light), Schofield Barracks, Hawaii; and the 56th Brigade of the 28th Infantry Division (Mechanized), Pennsylvania Army National Guard.

Figure 2: Army's Estimated Schedule for Transforming Its Existing Combat Forces Into the Future Objective Force



Legend:

ARNG = Army National Guard

BCT = Brigade Combat Teams

CA = counter attack

FY = fiscal year

Source: Department of the Army.

The Army's current combat force is made up of (1) heavy Legacy Forces that comprise its Counter Attack Corps, (2) other active-duty combat forces, (3) Army National Guard combat forces, and (4) Army National Guard-enhanced separate brigades. The six- to eight-brigade Interim Force is to begin entering the Army's force in 2003.

As figure 2 shows, the Army plans to transform its entire combat force over the next 30 years to Objective Force designs while phasing out Legacy and Interim Forces. For example, through modernization and recapitalization, Counter Attack Corps brigades are to retain their current warfighting capabilities until they begin transforming to Objective Force brigades in about 2020. The plan calls for their transformation to be completed by 2026. Transformation of the active-duty non-Counter Attack Corps, National Guard-enhanced separate brigades and other National Guard divisional forces is to be completed from 2020 to about 2030. The six to eight Interim Brigade Combat Teams are to be the last to transform and will not become part of the Objective Force until after 2030.



Changes Are Planned Across the Army

- **Operational Army** - will adopt new warfighting concepts and change the way the Army fights.
- **Institutional Army** - will change soldier and leader training and facilities.
- **Support Forces** - will change the Army's support structure, processes, and logistics capabilities.
- **Combat Divisions** - will have a new organizational structure and operational concepts for divisions.

Under current plans, the Army's transformation would affect all elements of the Army, including its operational combat force; the Institutional Army, which includes the Army's training centers and schools; and support forces.

Transforming the Operational Army involves developing new warfighting concepts and capabilities—the way the Army fights. Transforming the Institutional Army will involve such things as changing training and training facilities to support the new operational forces. As part of this effort, the Army plans to change the way it trains soldiers and leaders and develop multifunctional soldiers who will be better equipped to handle complex and varying situations. It plans also to modernize its Combat Training Centers and schools to keep pace with changes in force structure, doctrine, and technology.

An important element of transformation will be to streamline support forces and logistics processes to enable faster deployment, improve mobility, and more effectively sustain operational forces. Finally, the Army is considering plans to extend new operational force designs beyond its brigades by fielding interim divisions and new capabilities at the corps level. The Army has not yet finalized the details of the structures and operational concepts at these levels of organization.

Briefing Section II: Management of the Transformation



Transformation Campaign Plan Guides Army Efforts

- Provides a common frame of reference for integrating and synchronizing transformation activities throughout the Army.
- Is a living document that will require change and refinement during execution.
- Explains the rationale for transformation and outlines how the Army will achieve transformation over a 30-year period.
- Is a conditions-based plan in that activities proceed once specific conditions are met and decisions are made.

To manage its transformation, the Army has developed and adopted a Transformation Campaign Plan, which is intended to integrate and synchronize all elements of its transformation. This plan establishes a common framework for guiding transformation activities throughout the Army and is intended as a living document that will require changes and refinements as Army efforts evolve.

The plan describes the national security conditions upon which transformation is based; articulates the mission and goals of the

transformation; and describes in detail the objectives of, and activities associated with, each phase of the transformation. It also establishes major decision points and the conditions that must be met to proceed to each successive step in its transformation. For example, the decision to transition from the Initial Force (first two brigades) to the Interim Force is to be made when the first battalion of the initial Brigade Combat Team has fielded its Interim Armored Vehicles and associated initial equipment, including some substitute items as necessary.

Table 1: Roles and Responsibilities in Army's Transformation Campaign Plan

Lines of operation	Secretary of Army oversight	Proponent organization
Strategic Requirements & Planning	Manpower & Reserve Affairs	Deputy Chief of Staff for Operations
Modernization and Recapitalization	Acquisition, Logistics & Technology	Deputy Chief of Staff for Operations
Manning the Force/ Investing in Quality People	Manpower & Reserve Affairs	Deputy Chief of Staff for Personnel
Maintain Unit Readiness & Training	Manpower & Reserve Affairs	Deputy Chief of Staff for Operations
Training and Leader Development	Manpower & Reserve Affairs	Training & Doctrine Command
Joint/Army Strategy & Concepts	International Affairs	Deputy Chief of Staff for Operations
Army Doctrine	Manpower & Reserve Affairs	Training & Doctrine Command
Operational Force Design	Manpower & Reserve Affairs	Training & Doctrine Command
Deploying and Sustaining	Acquisition, Logistics and Technology	Deputy Chief of Staff for Logistics
Develop & Acquire Advanced Technology	Acquisition, Logistics and Technology	Army Materiel Command
Management of Force Programs	Manpower & Reserve Affairs	Deputy Chief of Staff for Operations
Installations	Installations and Environment	Assistant Chief of Staff for Installations
Strategic Communications	Public Affairs	Army Chief of Staff
Resourcing	Financial Management & Comptroller	Program Analysis & Evaluation

Source: Department of the Army.

As shown in table 1, the Campaign Plan outlines 14 functional areas for the transformation—"lines of operation" in Campaign Plan parlance. These lines of operation coincide with such established programmatic and decision-making areas as doctrine, training, leader development, organization, materiel, soldier systems, and facilities. The last two—Strategic Communications and Resourcing—support the overall Campaign Plan. Strategic Communications seeks to inform and educate others about the transformation. Resourcing includes integrating transformation resource requirements into the planning and budgeting process. The mission and objectives for the 14 lines of operations are listed in appendix I.

Entities within the Office of the Secretary of the Army and various offices under the purview of the Army Chief of Staff have been assigned

responsibilities for the activities associated with these 14 areas. This coupling of counterpart civilian and military commands and offices is intended to foster cooperation in achieving transformation goals across the Army. The Campaign Plan articulates the specific roles and responsibilities for these entities and delineates where coordination among offices is necessary.

**Briefing Section II: Management of the
Transformation**



Integration of Transformation Into Army Processes

- Army purposely did not establish new processes or budgeting systems expressly for transformation.
- Office of Program Analysis and Evaluation integrates plan with Army's Programming, Planning, and Budgeting systems and Program Objective Memorandum.
- Force developers are incorporating new organizational designs into Total Army Analysis to define unit and personnel requirements.
- Acquisitions are integrated into the Army Modernization Plan.

The Army Chief of Staff directed that the transformation be planned within existing planning and budgeting systems. Accordingly, the Director, Office of Program Analysis and Evaluation, is to integrate Army transformation requirements into the Army's Planning, Programming, and Budgeting Execution System to ensure that adequate funding is available to meet transformation objectives. The Director is to identify and validate resource requirements; ensure that the transformation timeline is synchronized with the planning, programming, and budgeting process; and prioritize requirements for inclusion in the Army's annual Program Objective Memorandum and annual budget.

The management of transformation-related force structure changes is to be accomplished by integrating proposed organizational changes into the upcoming Total Army Analysis, a process by which the Army determines its force structure. Personnel requirements and changes are to be reflected in preparing the Army's 2003 Program Objective Memorandum. Similarly, transformation-related modernization and acquisitions are integrated into the existing Army Modernization Plan.



Coordination Mechanisms

- General Officers provide biweekly synchronization briefings for Army Vice Chief of Staff.
- Biweekly updates are held with staff-action officers.
- Commanders in Chief Requirements Task Force provides forum for input and feedback from regional commanders.
- Army Chief of Staff receives regular transformation briefings.
- Automated management tool is used throughout Army to synchronize and link thousands of interrelated tasks, decision points, and milestones.

The Army has established several forums at various levels of the organization to discuss evolving issues and address matters of concern. These forums coordinate and synchronize decision-making for the Campaign Plan throughout the Army. General Officers representing the Campaign Plan's 14 lines of operation participate in biweekly synchronization briefings with the Army Vice Chief of Staff. Key decision points are discussed at these briefings. These briefings are followed by biweekly meetings where staff officers representing the lines of operation are provided with feedback on decisions made in the General Officer briefings, discuss issues, and assign required actions. Another forum for gaining input from the field is the Commanders in Chief (CINC) Requirements Task Force, which meets quarterly to address current and future CINC requirements. According to Army officials in the field, their participation in this forum has enabled them to raise issues that concern them. The Army has also established various special task forces that meet regularly to address specific issues related to the transformation. The Army Chief of Staff receives regular briefings on the proceedings of these groups.

To help manage its decision-making process across the lines of operation, the Army has developed a software program that synchronizes and links thousands of interrelated tasks, decision points, and milestones. Representatives of the lines of operation meet regularly to synchronize and track the progress of ongoing tasks and decision points.



Evaluation Mechanisms

- Army is evaluating new doctrine and organizational structures and gaining insights for transformation to the Objective Force as the first Brigade Combat Team trains.
- The Army War College is conducting wargaming and analysis of new concepts and organizational designs, thereby permitting continuous evaluation and refinement.
- The Army is capturing lessons learned in forming the initial Brigade Combat Teams.

The Interim Brigade Combat Teams are intended to meet what the Army sees as a critical strategic capabilities gap. However, the Army is also using the Combat Teams as a means for testing and validating the concepts, doctrine, and training that the Objective Force may ultimately adopt. As such, the ongoing activities of the initial brigades serve as an evaluation mechanism for the Campaign Plan.

As the brigades are being formed, the Army War College complements this evaluation activity by conducting wargaming and analyses of new concepts and organizational designs. The results of these analyses are fed back to Army force developers and trainers so that transformation concepts and plans can be continually refined.

The Army Test and Evaluation Command, Center for Army Lessons Learned, Army schools, and the initial brigade at Fort Lewis are cooperating in capturing lessons learned in forming the initial brigade. For example, the Army is developing an installation template that subsequent brigades can use to establish the necessary facilities and infrastructure needed for these new brigades.



Coordination of Transformation Within the Department of Defense

- Growing recognition across the services and in the Office of the Secretary of Defense that U.S. military must transform to meet 21st-century challenges.
- Quadrennial Defense Review is examining the role of transformation in the military strategy and defense program.
- Lack of joint blueprint for transformation has led to individual service plans for transformation.
- New Office of Force Transformation is being established within the Office of the Secretary of Defense.

The Secretary of Defense's 2001 Annual Report to Congress, issued by the previous administration, highlighted military transformation as a priority activity. It highlighted the importance of service and joint concept development and experimentation and new technologies, concepts, and capabilities to transformation. The Chairman of the Joint Chiefs of Staff, in Joint Vision 2020, also included transformation goals. The current administration has indicated that transformation will have a prominent place in its defense program. Accordingly, there is a general agreement that transformed U.S. military forces are needed to respond effectively to the changing security environment of the 21st century.

Beyond these broad documents and statements, the Department of Defense (DOD) has not put forward an overall DOD strategy for advancing transformation to guide the services' efforts. As a result, each of the services, including the Army, has approached transformation without a clear indication of how its individual efforts fit into an overall scheme for transformation. In its September 2001 Quadrennial Defense Review report, the Department of Defense said it will establish a new office reporting directly to the Secretary and the Deputy Secretary of Defense. The Director, Force Transformation will evaluate the transformation efforts of the Military Departments and recommend steps to integrate their transformation activities.

Briefing Section III: Key Challenges



Key Challenges

- Technology
- Interim Force schedule
- Acquisitions
- Operations
- Human capital
- Funding

The Army has made substantial progress in implementing its transformation since it was announced in October 1999. By March 2000, the Army had completed the requirements and the solicitation to acquire interim armored vehicles for its Interim Brigade Combat Teams; the contract was awarded November 17, 2000. The Army has also made substantial progress in developing new doctrine and organizational and operational designs for the new Brigade Combat Teams and has begun forming its initial brigade at Fort Lewis, Washington. In February 2000, the Army and the Defense Advanced Research Projects Agency entered into a 6-year collaborative program to explore, design, and test new technologies vital to the Army's future Objective Force. These technologies include robotics, sensors, new fuel and power systems, advanced armor, and command and control networks. In May 2000, the Army selected four contractor teams to concurrently work on design concepts for these new capabilities.

But while progress has been impressive, the Army clearly faces significant, interrelated challenges in implementing its transformation. The following charts outline what we see as some key challenges in technology, the Interim Force schedule, acquisitions,¹ operations, human capital, and funding.

¹ We discussed acquisition challenges in more detail in *Defense Acquisition: Army Transformation Faces Weapon Systems Challenges* (GAO-01-311, May 21, 2001).



Technology

- Technology advances are needed for future combat systems, situational awareness, and streamlining logistics operations.
- Army's 2- to 3-year time frame for significant advances in science and technology is uncertain.
- Cost, affordability, and capabilities of future combat systems and digital technology are uncertain.

The ultimate success of the Army's transformation strategy, schedule, and key operational capabilities hinges on achieving anticipated science and technology advances. The Army believes that science and technology breakthroughs within the next 2 to 3 years will enable industry to produce lighter, yet highly lethal and survivable, armored combat systems. However, such technology breakthroughs are far from certain. The Army is also counting on advances in digital communications and computer information systems technology to achieve enhanced situational awareness on the battlefield.² The Army sees this capability as critical to the warfighting concepts of both the Interim and Objective Forces and to attaining an adequate level of force protection and survivability.

The Army is also hoping that emerging technology will make it possible to produce combat systems that are more reliable and fuel efficient, thus reducing the amount of deployed spare parts and fuel to maintain and operate them. Reducing the weight of future combat systems and their sustainment requirements in this manner is critical to the Army's ability to meet the rapid deployment goals it has set for itself. Advanced digital communications and computer capabilities are also critical capabilities in order to move to sustainment concepts that rely more on quickly moving supplies and parts to the battlefield rather than taking them all along.

To reduce the weight of armored combat systems while maintaining survivability, and improve their reliability and fuel efficiency, the Army has asked the science and technology community to provide a comprehensive set of technological recommendations by 2003. Much of the technology that the Army needs for these capabilities is still in the early stages of concept development, and technology advances to provide the answers that the Army seeks are not guaranteed. There also are no assurances that industry can produce affordable future combat systems light enough to meet the air deployability requirements without sacrificing their lethality and survivability. Nor are there assurances that advanced digital technology will provide the situational awareness and the advancements in logistics operations that the Army will need. Many uncertainties surround the associated cost and capabilities of these future combat systems, and the Army will be challenged in estimating both cost and capabilities until the technologies are fully developed and tested.

² Situational awareness is the ability to see and understand the battlespace before coming into actual contact with the opponent through the use of advanced command, control, communications, computer, and intelligence systems.



Interim Force Schedule

- Delivery schedule for Interim Armored Vehicles is late.
- Schedule delays reduce time needed to evaluate and refine new organizational/operational concepts for Interim Brigade Combat Teams (IBCTs).
- Delay in naming next four IBCTs will challenge installation planning.
- CINCs need better information on anticipated combat capabilities and logistics factors to adequately assess and mitigate risks of using new brigades.

Owing to delays in the acquisition and fielding schedules for interim armored vehicles, the Army is not likely to meet its original schedule for forming the planned six to eight Brigade Combat Teams that comprise its Interim Force. Longer-than-expected development work for three of the interim armored vehicle variants (the mobile gun system, the fire support vehicle, and the chemical reconnaissance vehicle) resulted in a 16-month delay in the original vehicle-fielding schedule. Also, another contractor making an offer protested the award; and work under the contract was

suspended about 4 months, pending the outcome of the protest, which was denied in April 2001.

Delays in fielding the interim armored vehicles have disrupted the Army's original training schedule for the brigade, ultimately setting back the date the Army planned to have the brigade reach initial operational capability. The original estimate for achieving this milestone has been extended from December 2001 to no later than May 2003—a minimum delay of about 16 months. Such delays could jeopardize the scheduled transition to the Objective Force in 2008, since there may be insufficient time to fully evaluate and refine the organizational and operational concepts for the new Interim Brigade Combat Teams.

The Army named its next four Interim Brigade Combat Teams in July 2001—4 months later than expected (Mar. 2001). This delay could pose challenges to Army planning officials, who say they will need at least 3 to 5 years of lead time to plan and construct maintenance and other installation facilities that the new brigades will need. Army officials advised us that officials were working on these issues even before the locations were officially announced and will incorporate needed funding in the next programming and budget cycle. They acknowledged, however, that installation planners face many challenges in forming the initial brigade as did the planners at Fort Lewis.

Delays in forming these initial brigades and in evaluating their capabilities have raised questions about what capabilities the regional CINCs can expect from the Interim Brigade Combat Teams. Planners in the field believe that they need better information on the projected combat capabilities of these brigades so that they can assess and mitigate any risks that might be involved in their employment. Similarly, logistics officials in the field expressed a need for better information on how these new brigades are to be supported to adequately plan for their use. The degree of uncertainty associated with both projected combat capability and logistical support will continue to pose substantial challenges to planners in the field.



Acquisitions

- Projected time to develop, acquire, test, and field Future Combat Systems by 2008 and reach projected initial operational capability date of 2010 may not be sufficient.
- Maturity of technologies needed for Future Combat Systems is uncertain.
- Army's plans to recapitalize or upgrade 17 major systems concurrently with equipping Interim Force pose challenges.

The Army plans to develop the future combat systems concepts, design the systems, and field them over an 8-year period. The first Objective Force brigade is to be equipped in fiscal year 2008 and reach its initial operating capability by fiscal year 2010. However, DOD historically has not been able to develop high-technology systems within such a relatively short period. Its average acquisition cycle for all systems has been from 10 to 15 years. For example, both the Comanche helicopter and Crusader self-propelled artillery system required significantly more time in development than originally envisioned. The Comanche will have been in development for 23 years and the Crusader for over 16 years before their planned fielding dates.

A key question is whether the envisioned technologies will reach maturity in time to meet projected time lines. Under current plans, the Army projects that, by 2003, it will need to decide whether the key technologies required for the future combat systems will be mature enough to enter the systems development stage in fiscal year 2006. Developing these systems is likely to require a number of significant advances in science and technology, and Army officials agree that counting on the maturity of these systems at the time they are needed is high risk. Army officials advised us that, if needed technologies were not mature at that time, the Army would proceed with the most promising technologies available and then modify the systems later to incrementally improve their capabilities over time. The Army realizes that it may need to make schedule and other adjustments as conditions change.

The Army's plans also call for recapitalizing or upgrading 17 existing systems in both active and reserve components to provide combat capability until it transitions to the Objective Force. Recapitalization plans include such key combat systems as the Abrams tank, Bradley Fighting Vehicle, and Apache helicopter. (See app. III for a listing.) Concurrently fielding interim armored vehicles, developing and procuring future combat systems, and carrying out the recapitalization of existing systems will pose challenges that may require prioritization and trade-offs.



Operations

- The Army must simultaneously support, sustain, train, and man three forces--the Legacy Force, Interim Force, and Objective Force.
- Goal to deploy a brigade anywhere in world in 96 hours hinges on strategic mobility and streamlining logistics.
- Significant air mobility shortfalls may exist for current and future requirements.
- Logistics initiatives are lagging behind other transformation programs.

The transformation poses numerous operational challenges related to maintenance, training, personnel requirements, installations, and logistics, since it will need to simultaneously support three different forces—Legacy, Interim, and Objective Forces—beginning in about 2010. Maintaining and supporting the Legacy Force's tracked tanks and combat vehicles, the Interim Force's interim armored vehicles, and the Objective Force's envisioned combat systems will require different types of facilities and occupational specialties to maintain them and different logistics operations and support capabilities to deploy and sustain them. Similarly,

training three forces is likely to be difficult because officers and soldiers will need to undergo training on different equipment and in skills geared toward different doctrine, tactics, and organizational designs. Furthermore, supporting the different types of training will cause the Army's combat training centers and schools to make significant adjustments.

Creating the Army's ability to deploy forces and equipment quickly is a critical aspect of the transformation. Ultimately, the Army hopes to attain the capability to deploy a combat-capable brigade anywhere in the world in 96 hours, a division in 120 hours, and five divisions in 30 days. To meet these capabilities, the Army may need more airlift aircraft than the Air Force can provide. In 1998, DOD initiated a major study to update its mobility requirements and programs. The study, *Mobility Requirements Study 2005*, found that DOD is currently operating with a significant strategic airlift shortfall. The study also found that insufficient airlift assets, low mission-capable rates for the air fleet, insufficient crew-to-aircraft ratios, and shortages of spare parts have created shortfalls in strategic airlift across the services. Given the current airlift shortfalls and the increased demand on airlift that the Army's transformed forces will require, the Army's goals for rapid air deployability may be difficult to achieve. Acknowledging this potential shortfall, Army officials are now examining how the deployment goals might be achieved through a combination of airlift, fast sealift, and prepositioning of needed equipment abroad.

One of the principal operational challenges facing the Army is increasing strategic responsiveness across the spectrum of potential conflicts anywhere in the world. Success will require the Army to improve and streamline logistics operations and reduce sustainment requirements. The Army is currently working on ways to reduce the sustainment requirements of the Interim and Objective Forces to levels well below those of its heavy Legacy Forces, which require extensive stockpiled materiel for support. Again, success depends on the Army's development of the technology required to produce future combat systems that are as lethal and survivable as the current heavy-weapons systems, yet light enough to be transported in a C-130-type aircraft. Technological breakthroughs that can reduce sustainment requirements through better reliability of systems and increased efficiency in power, fuel, and ammunition consumption will be necessary. Advances in information technology will also be needed to provide the real-time logistics control and support capabilities that are a critical part of the Army's efforts to streamline its logistics processes. In addition, the Army's efforts to

transform its support forces are of major importance to successfully reducing the number of people that need to be deployed to support the combat forces.

Briefing Section III: Key Challenges



Human Capital

- Changes in force structure and required skills will cause significant personnel turbulence.
- Reserve component forces face special challenges.
- New brigade designs require skills in short supply.
- Maintaining proficiency in digitized systems while training soldiers to be multifunctional will pose challenges.
- Army will be challenged to retain personnel who have gained advanced technology skills.

Maintaining continuity and skill proficiency will be challenging, given the frequency of personnel rotations and the many skill conversions that will be required. Significant personnel turbulence could be created as the Army converts individuals to different military occupational specialties and units to new organizational and operational designs. For example, Army officials advised us that the number of military occupational specialties will be reduced from about 252 to about 170 over the course of the transformation.

Special human capital challenges will arise from the Army's decision to include one National Guard brigade as part of its Interim Force. Converting this brigade will require many personnel to convert to new skills. Historically, it has taken long periods of time for reserve personnel to attain full skill qualifications in some specialties because of limitations on time, training opportunities, and available resources. This is a long-standing problem, and the Army recently noted that qualification rates in the National Guard have declined over the last 5 years. Recruiting sufficient personnel to fully staff units that are expected to deploy quickly could also pose challenges, since personnel with the proper skills must be recruited within limited geographical areas. Gaining the wide range of new skills needed and retaining proficiency in these skills could be challenging, given the limited time that reserve forces have available to train.

The Army is currently dealing with such personnel issues as shortages of junior officers and problems in recruiting and retaining personnel with certain skills. The new force designs require increased numbers of some specialties, such as military intelligence, that have historically been in short supply throughout the Army. For example, the Interim Brigades require over 200 military intelligence specialists—about 170 more military intelligence specialists than a traditional heavy-combat brigade. The Army has experienced shortages in this specialty for many years, and the demand for such personnel in ongoing contingency operations abroad has increased.

The Army's increased reliance on communications and information systems technology for tactical warfighting information and real-time logistics control and personnel support will place extra demands on military personnel. To maintain, support, and operate future combat systems and associated technology, both military and civilian personnel will need to be trained in advanced communications, computing, and information systems technology. Military personnel will need to periodically repeat training on digitized systems to retain proficiency while being trained at the same time to develop a wider range of new skills. Scheduling all such training and maintaining proficiency will be challenging to the Army's trainers, and maintaining proficiency will challenge individual leaders and soldiers.

Finally, the Army recognizes that in providing its personnel with advanced technology skills, it will need to provide robust quality-of-life programs and incentives if it is to retain personnel whose skills are likely to be in great demand in the civilian economy.



Funding

The Army's Vision

Readiness

- **Unit Training**
 - Optempo
 - Training Range Modernization
 - CTC Modernization
 - Training Modernization
- **Sustainment**
 - Depot Maintenance
 - Ammo/Missiles Management
 - Strategic Mobility Equipment
- **Installations & Infrastructure**
 - Base Operations
 - Real Property Maintenance
 - Information Infrastructure
 - Strategic Mobility Infrastructure

People

- **Man the Force**
 - A/C & R/C Manpower
 - Civilian Manpower
 - Recruiting & Retention
- **Well-Being**
 - Health Care
 - Housing
 - Family Programs
 - Pay & Allowances
 - Education
- **Leader Development**
 - Institutional Training
 - Civilian Training

Transformation

- **Objective Force**
 - Science & Technology
 - Modernization
- **Legacy Force**
 - Recapitalization
 - Modernization
- **Interim Force**
 - IAV

Legend:

A/C = Active Component
 CTC = Combat Training Centers
 IAV = Interim Armored Vehicle
 R/C = Reserve Component

Trade-offs and budget prioritization will likely be needed to maintain current readiness and carry out transformation within existing funding authority. The Army has already made some difficult trade-off decisions. For example, to help fund the acquisition of interim armored vehicles; the Army canceled 10 major procurements, restructured four other programs, and shifted a significant amount of planned spending from fiscal year 2001 through fiscal 2005. Further adjustments may be needed, since the Army estimates that its planned Legacy Force modernizations alone will require about \$23 billion in fiscal years 2002 through 2007.

In addition, the Army will be faced with having to balance the transformation-related funding with a full range of other budget priorities as noted in the Funding briefing chart. The Army says that transformation starts first with people and that without adequately manning the force, providing for the well-being of soldiers and their family, and investing in leader development, the Army cannot achieve its transformation. Balancing its funding to meet these important competing Army priorities will be difficult. Similarly, the Army will be competing for resources within DOD at a time when all the services are facing readiness and modernization challenges. Other national spending priorities make it uncertain whether the Department can expect substantial funding increases over the long period of the transformation.

Briefing Section IV: Conclusions



Conclusions

- Army has a comprehensive transformation plan that sets goals and milestones; articulates roles and responsibilities, and provides means to raise issues, coordinate efforts, track progress, and collect and disseminate lessons learned.
- Army faces substantial challenges in implementing a transformation spanning 30 years that is highly dependent upon near-term technology advances and long-term funding commitments.
- To be successful, the transformation will require the sustained commitment of top civilian and military leaders as well as support by the Congress.

The Army's Transformation Campaign Plan provides a comprehensive, highly adaptable, results-oriented plan to guide its transformation efforts over the next 30 years. This management vehicle provides a common frame of reference for officials throughout the Army, sets clearly defined transformation goals and milestones, and assigns clear roles and responsibilities for implementing the transformation. The coordination forums that the Army has established provide a means to hear and address concerns in a timely manner; and the electronic tool that accompanies the Campaign Plan enables the Army to synchronize its activities, track progress, and adjust plans as problems arise. By using the Interim Brigade Combat Teams to validate concepts and by capturing lessons learned, the Army has a means to evaluate its efforts and apply lessons learned to future brigade formation and ultimately the Objective Force. By integrating the transformation into its existing planning, budgeting, and decision-making processes, the Army has greater assurance that transformation program and funding needs are identified and balanced against other Army priorities. The results of the Quadrennial Defense Review as well as other events are likely to affect the Army's plans. We believe that the management construct established by the Transformation Campaign Plan is flexible enough to permit the Army to adapt its plans to evolving events.

The existence of a comprehensive management plan, however, does not diminish the challenges the Army faces in implementing it. The Army's plans are highly dependent on near-term technological advances and long-term funding commitments that make attaining some milestones uncertain. To be successful, the transformation will need a sustained commitment by Army leadership and support by the Office of the Secretary of Defense, Joint Chiefs of Staff, and Congress to sustain the Army's plans over the long period envisioned for the transformation.

Appendix I: Transformation Campaign Plan's Lines of Operation, Missions, and Objectives

Line of operation	Mission and objective
Strategic Requirements and Planning	Address strategic requirements and planning to ensure that throughout the transformation process, all critical Commander in Chief (CINC) requirements are supported; incorporate emerging Army capabilities into CINC requirements for the future and within joint and services' strategic documents.
Modernization and Recapitalization	Ensure modernization and recapitalization of Army forces. Conduct force development for Legacy, Interim, and Objective Forces, including the fielding and integration of new equipment and force designs. Ensure that investment plans support overall force development.
Manning the Force and Investing in Quality People	Man the force for full-spectrum operations and invest in quality people to ensure a trained and ready force. Man the warfighting units at 100 percent; recruit and retain to meet the Army's needs; field soldier-usable equipment; manage attrition and separation; redesign business practices and adapt personnel services and support to available technology; and enhance the well-being of the Army family.
Maintain Unit Readiness and Training	Maintain required levels of unit readiness and training; analyze effects of transformation on readiness resource levels and provide recommendations to minimize turbulence, instability, and lowered overall readiness levels; continue to implement changes to AR 220-1 and the automated readiness system, which will capture readiness requirements of the future force structure.
Training and Leader Development	Ensure training and leader development actions required to maintain trained and ready Legacy Forces and produce transformed units and leaders capable of joint warfighting, as well as change. Create a learning environment that is responsive to emerging technologies and continually improves processes, procedures, and products that support the force.
Joint/Army Strategy and Concepts	Ensure that transformation of the operational Army has a firm strategic and operational foundation by embedding the requirement for strategically responsive, fully dominant landpower in key national, Defense Department, joint service, and Army documents for strategy, concepts, and doctrine.
Army Doctrine	Integrate the development of Army doctrine, tactics, techniques, and procedures to support the transformation of the Army. Ensure that current doctrine is revised to support the Legacy Force through transformation and that Interim Force doctrine is developed and revised to support the Objective Force. Ensure integration with emerging joint and multinational doctrine throughout transformation to define the Army's capabilities and contributions in joint and multinational operations.
Operational Force Design	Develop and field operational force designs for combat forces, command and control, and support elements that are strategically responsive and dominant at every point on the spectrum of operations.
Deploying and Sustaining	Ensure that Army forces are capable of rapidly deploying in support of current and future operational force deployment goals. Effectively sustain the full spectrum of Army operations, while synchronizing Army and joint service efforts to (1) reduce the operational force sustainment requirement and related combat service and combat service support demand on lift, (2) reduce deployed combat support footprint in the combat zone, (3) transform the institutional support elements of the Army to be more strategically responsive (across the full spectrum), and (4) reduce the cost for logistics/support without reducing warfighting capability.
Develop and Acquire Advanced Technology	Develop and acquire advanced technology to provide materiel solutions for the Legacy, Interim, and Objective Forces.
Management of Force Programs	Assess and design the institutional Army throughout transformation; integrate institutional reengineering initiatives using existing force management processes, while examining options for more efficient management practices.

**Appendix I: Transformation Campaign Plan's
Lines of Operation, Missions, and Objectives**

Line of operation	Mission and objective
Installations	Manage, modernize, and refine installations as strategic assets throughout the Army's transformation; ensure that necessary real property support and services at installations are provided during transformation and are provided for the Objective Force, while providing proper stewardship of the environment.
Strategic Communications	Synchronize and coordinate the transformation's strategic communications efforts to internal and external audiences to inform, educate, and build consensus; to garner support; and to acquire the resources for the Army's transformation.
Resourcing	Integrate Army transformation requirements with the Army's Planning, Programming, Budgeting, and Execution System and ensure adequate funding for transformation objectives.

Source: Department of the Army.

Appendix II: Combat, Aircraft, and Support Systems and Equipment Planned for Recapitalization or Upgrade During Army Transformation

System	Description
Combat systems	
M1 A1/A2 Abrams Tank	Heavy armor tracked combat vehicle
M2/M3 Bradley Fighting Vehicle	Infantry and cavalry tracked combat vehicle
M113 Family of Vehicles	Family of tracked vehicles
Patriot Missile System	Provides defense against aircraft, cruise missiles, and tactical ballistic missiles
Multiple-Launch Rocket System	Rocket launcher
M992 Field Artillery Ammunition Supply Vehicle	Provides resupply and support of field artillery units
Aviation systems	
AH-64 A/D Apache/Longbow Helicopter	Attack/reconnaissance helicopter
UH-60 Black Hawk Helicopter	Utility and assault helicopter
CH-47 Chinook Helicopter	Cargo helicopter
Combat support systems	
M48/M60 Armored Vehicle-Launched Bridge	Provides assault-bridging capabilities for tank and mechanized battalions
M9 Armored Combat Earthmover	Multipurpose engineer vehicle
AN/TPQ-36/37 Firefinder	Artillery locating radar
Small Emplacement Excavator	All-purpose, wheeled engineer vehicle
High-Mobility, Multipurpose Wheeled Vehicle	Light, tactical vehicle
AN/ASM-190 (includes AN/ASM-146, AN/ASM-147, and AN/ASM-189)	Electronic shop shelter
M88 Hercules	Equipment recovery, combat utility lift and evacuation system
Heavy Expanded-Mobility Tactical Truck	10-ton, 8-wheel drive family of vehicle systems

Source: Department of the Army.

Appendix III: Comments From the Department of Defense



ACQUISITION,
TECHNOLOGY
AND LOGISTICS

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

01 NOV 2001

Ms. Carol R. Schuster
Director, Defense Capabilities and Management
U.S. General Accounting Office
Washington, D.C. 20548

Dear Ms. Schuster:

This is the Department of Defense (DoD) response to the GAO Draft Report, "MILITARY TRANSFORMATION: Army Has a Comprehensive Plan for Managing Its Transformation but Faces Major Challenges," September 24, 2001 (GAO Code 350008). The DoD generally agrees with the report. We have provided separately some comments for improving the accuracy of the report.

As a result of several meetings with the Army staff and visits to the field, the GAO has identified key challenges the Army faces during its Transformation. The Department will continue to address these challenges as we attempt to maintain our current timelines.

The Department appreciates the opportunity to comment on the draft report.

Sincerely,

George R. Schneider
Director
Strategic and Tactical Systems



Ordering Information

The first copy of each GAO report is free. Additional copies of reports are \$2 each. A check or money order should be made out to the Superintendent of Documents. VISA and MasterCard credit cards are also accepted.

Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

Orders by mail:

U.S. General Accounting Office
P.O. Box 37050
Washington, DC 20013

Orders by visiting:

Room 1100
700 4th St., NW (corner of 4th and G Sts. NW)
Washington, DC 20013

Orders by phone:

(202) 512-6000
fax: (202) 512-6061
TDD (202) 512-2537

Each day, GAO issues a list of newly available reports and testimony. To receive facsimile copies of the daily list or any list from the past 30 days, please call (202) 512-6000 using a touchtone phone. A recorded menu will provide information on how to obtain these lists.

Orders by Internet

For information on how to access GAO reports on the Internet, send an e-mail message with "info" in the body to:

Info@www.gao.gov

or visit GAO's World Wide Web home page at:

<http://www.gao.gov>

To Report Fraud, Waste, and Abuse in Federal Programs

Contact one:

- Web site: <http://www.gao.gov/fraudnet/fraudnet.htm>
- E-mail: fraudnet@gao.gov
- 1-800-424-5454 (automated answering system)